

## REMARKS

Further to the Final Rejection dated February 25, 2010, the Interview of June 25, 2010, and the Notice of Appeal filed on August 24, 2010, please reconsider the application in view of the following amendments and remarks submitted with the accompanying RCE and Applicant Initiated Interview Request Form. Claims 1-11, 14-15, and 20-66, and 68-74 are pending in this application, and claims 55-61 have been withdrawn by the Examiner. By this Amendment, claims 1, 20, 25, 42, 47, 48, 50, 64, 72, and 73 have been amended in response to the § 112 rejections, and claim 67 has been canceled. The amendments are supported in the as-filed application by at least page 4, lines 15-16, and Fig. 1. Reconsideration of this application in view of the above amendments, and the arguments presented below, is respectfully requested.

### 35 U.S.C. 103 REJECTIONS

Claims 1-11, 14, 15, 20-54, 62, and 63 stand rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,727,737 to Bosio et al. ("Bosio") in view of U.S. Patent No. 5,810,263 to Tramm ("Tramm") and U.S. Patent No. 4,296,816 to Fischer ("Fischer"); and claims 64-74 stand rejected under 35 U.S.C. 103(a) over Fischer in view of Tramm. The rejections are respectfully traversed.

In view of at least the amendments to claims 1 and 64, and the arguments and amendments presented previously, Applicants respectfully submit that a *prima facie* case of obviousness cannot be established because Fischer alone or in combination with Tramm, and/or Bosio fails to show, describe, teach or suggest each and every feature of the claimed invention.

Applicants submit that none of the cited references (Fischer, Tramm, or Bosio), whether taken alone or in combination, show, describe, teach or suggest each and every feature of the sprinkler and its deflector as now claimed. In particular, Fischer does not have a deflector with a face portion having an opening "consisting of a single opening." Rather, the deflector of Fischer has a face portion with multiple openings. More specifically, Fischer shows in FIG. 3 and FIG. 5, a face portion 76 of the deflector (as identified by the Examiner) having two slots 77 disposed about the central hub 60 of the Fischer deflector. *See* Fischer, FIG. 3. Because the Fischer deflector has two slots in the face portion 76, Fisher fails to have a face portion having an

opening "consisting of a circular opening" as claimed. Tramm and Bosio fail to cure the deficiency of Fischer so as to reach the claimed invention as a whole.

Additionally, because Fisher has two slots 77 in its deflector that are described as, "[l]ong rectangular slots 77 [that] distribute water onto the immediate floor area," Fischer fails to show or describe "a single opening of the deflector through which water can pass" as is recited in each of independent claims 1, 20, 24, 25, 42, 45-48, 50, and 63. Again, neither Tramm nor Bosio cure the deficiency of Fischer so as to reach the claimed invention as a whole.

Furthermore, claims 1 and 64 have been further amended to positively recite a single opening as requested by the Examiner, and to recite features not shown or described in the prior art.

The pending claims recite additional features that are not present in the applied references. For example, each of the pending claims 1, 20, 24, 25, 42, 45-48, 50, and 63 recites that the face portion of the deflector has an upper edge and a lower edge located below an imaginary horizontal plane that extends parallel to the horizontal plane and perpendicular to an imaginary vertical plane. The amended claims further provide that the face portion has a bottom center extending below the horizontal plane "so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane." Neither Tramm nor Fischer have a face portion with a "lower edge" and "bottom center" as claimed. Instead, each of the deflectors of Tramm and Fischer have a slot in the region beneath the horizontal plane and centrally aligned along the vertical plane. *See* Fischer, col. 3, lines 5-7, FIG. 5 ("slot 80"); *see also* Tramm, FIG. 3. Accordingly, neither Fischer nor Tramm have a "bottom center" in its face portion that extends beneath the horizontal plane "so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane." Rather the "face portions" of both Fischer and Tramm have off-center regions that locate a lower edge portion most remotely from a horizontal plane of the deflector. Bosio fails to cure the deficiency of Fischer so as to reach the claimed invention as a whole. Withdrawal of the claim rejections is respectfully requested.

In addition to the arguments for patentability above, Applicants maintain that the rejections are traversed for reasons already of record. In particular, to support the obviousness rejection, the Examiner asserts throughout the Office Action that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sprinkler of

Fischer with the purported teachings of Tramm. The Examiner's proposed combination of references was made having apparently considered, yet finding unpersuasive, the Declaration of Michael A. Fischer, filed October 6, 2004, in which Mr. Fischer states that he (as one of more than ordinary skill in the art and inventor of the sprinkler of Fischer) would, at the time the invention was made, not have known how to modify the sprinkler shown and described in Fischer with the teachings of Tramm to reach applicants' invention. Applicants therefore maintain that a person of ordinary skill would not have been suggested, motivated or had an identified reason to modify the sprinkler shown and described in Fischer with the teaching of Tramm, as proposed by the Examiner, to reach the claimed invention as a whole so as to support a *prima facie* case of obviousness.

Applicants, again respectfully remind the Examiner, "[t]he mere fact that the references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art" MPEP 2143.01 Pt. III at 2100-128 to 2100-140. As has been previously noted, Tramm seeks to distinguish itself from Fisher. Tramm cites Fischer as an illustrative horizontal-type sprinkler. *See* Tramm, col. 1, lines 35-43. Tramm describes typical horizontal-type sprinklers as having substantially horizontal flow confining elements in which the confining surface is located "downstream (forward)" of the deflector mounting boss. *See id.*, col. 1, lines 35-43; col. 3, lines 33-37. Tramm, in contrast, describes a sprinkler having a deflector "rearward" of the deflector mounting boss to improve the over-all appearance of Tramm's sprinkler over "conventional technology horizontal-type sprinkler deflectors." *See id.*, col. 8, lines 13-23. In view of this difference or conflicting teaching between Tramm and Fischer, the Examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art in the obviousness analysis, considering the extent to which one might accurately discredit another. MPEP 2143.01 Pt. II at 2100-139. Applicants submit that the contrasting teachings between Tramm and Fischer weigh against their combination as proposed by the Examiner.

A prior art reference must be considered in its entirety, including portions that lead away from the claimed invention. MPEP 2141.03 Pt. IV at 2100-126. Where the claims of the instant application are directed to a sprinkler having a forward facing deflector, Tramm teaches away from the claimed invention. Tramm specifically teaches a deflector in which, "the substantially

horizontal flow containing element 48 is substantially rearward of deflector mounting surface 25 of deflector mounting boss 26.” See Tramm, col. 8, lines 13-16. Applicants submit that none of the cited references: Fischer, Tramm, and Bosio, whether taken alone or in combination, show, describe, teach or suggest applicants’ invention as a whole or provide an identifiable reason for their combination, and therefore, for at least the above reasons of record, the pending claims are patentable over the cited art.

Claims 1, 20, 24, 25, 42, 45-48, 50, and 63 recite a sidewall automatic fire sprinkler comprising, among other features, a deflector having a first arm, a second arm and a canopy portion having a free end defining a linear profile extending the entire length between the first and second arms “parallel to the horizontal plane.” Applicants submit that Fischer, whether taken alone or in combination with Tramm or Bosio (in the absence of an identified reason for such a combination), fails to show or describe or otherwise teach or suggest a deflector having a canopy portion with a free end as claimed. Instead, the deflector plate 38 of Fischer has a canopy or confining element 62 extending outward horizontally (perpendicular to the vertical plane of the hub). See Fischer at col. 3, lines 18-20, FIG. 3. According to Fischer, “[t]he confining element [62] is upwardly deformed at its downstream center to form channel 90, which extends upstream from downstream end 91 of element 62.” See *id.* at col. 3, lines 23-25, FIGS. 3 & 4 (emphasis added). Accordingly, Fischer does not show or describe the claimed canopy portion having a free end defining a linear profile extending between a first arm and a second arm “parallel to the horizontal plane.” Moreover, to the extent any one of Tramm or Bosio show or describe a canopy portion having a free end with a linear profile extending between a first and second arm, there is no suggestion or motivation to modify Fischer with such a teaching because to do so would change the principle of operation of Fischer.

According to Fischer, “[c]hannel 90 functions as a Coanda effect surface. . . . [I]t actually lifts upward the central stream, which is traveling horizontally (parallel to the undersurface of element 62).” See Fischer at col. 4, lines 24-32. Thus, to modify the deflector plate 38 of Fischer to have a canopy portion with a free end defining a linear profile as claimed, would change the principle of operation of Fischer, and therefore there is no teaching or suggestion to do so. See MPEP 2143.01, Pt. VI at 2100-141. (“If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention

being modified, then the teaching of the references are not sufficient to render the claims *prima facie* obvious). Because Fischer alone or in combination with Tramm or Bosio (in the absence of an identified reason for such a combination) fails to teach or suggest the claimed deflector and therefore fails to teach or suggest the invention as whole, a *prima facie* case of obviousness cannot be established. See MPEP 2143.01 at 2100-141. Applicants respectfully request withdrawal of the rejections of claims 1, 20, 24, 25, 42, 45-48, 50 and 63.

The Examiner argues that Fischer “discloses that with channel 90 cut away along boundary 95, ‘the sprinkler performed much the same as it did with no channel and an entirely flat confining element.’” See Detailed Action at 9, para. 7 (citing Fisher at col. 4, lines 33-37). With regard to its channel 90, Fischer more specifically states:

Channel 90 functions as a Coanda effect surface; the central portion of the stream remains attached to the undersurface of the channel, and is thereby lifted upward. The channel does not function like a notch cut in element 62 to merely permit a stream already travelling in an upwardly inclined direction to continue along its trajectory. Instead it actually lifts upward the central stream, which is travelling horizontally (parallel to the undersurface of element 62). Experiments confirm this conclusion. When a sprinkler was tested with element 62 cut away along boundary 95, ***the improved performance achieved with the channel was not repeated. Instead the sprinkler performed much the same as it did with no channel and an entirely flat confining element.***

Fischer, col. 4, lines 24-37 (emphasis added). To reiterate, it is applicants’ position that to modify the canopy of Fischer with a free end as claimed would alter the principle of operation of Fischer such that there can be no teaching or motivation to make such a modification in order to establish a *prima facie* case of obviousness. See MPEP 2143.01 at 2100-141 (Rev. 5, Aug. 2006). Thus, the description in Fisher, contrary to the Examiner’s understanding of the passage, supports applicants’ argument that modifying the Fischer canopy with a free end as claimed alters the principal of operation of Fischer’s sprinkler such that the sprinkler fails to repeat the “improved performance” of the Fischer sprinkler with the channel 90. Accordingly, the Examiner’s proposed combination/modification of teachings of Fischer, Tramm, or Bosio are insufficient to render the claims *prima facie* obvious.

Applicants submit that, in view of the above amendments and remarks, the cited references: Fischer, Tramm, and Bosio, whether taken alone or in combination, fail to show, describe, teach or suggest each and every feature of the claimed inventions so as to reach

applicants' invention as a whole. Therefore, at least amended independent claims 1, 20, 24, 25, 42, 45-48, 50, and 63 and the claims depending therefrom are patentable over the cited references.

With regard to the rejection of independent claim 64, the Examiner alleges that the claimed "means for dispersing" fails to invoke means-plus-function language falling within 35 USC 112, sixth paragraph because the claimed means is purportedly "modified by sufficient structure, material, or acts for achieving the specified function" so as not meet the third prong of the §112, sixth paragraph analysis. *See* Detailed Action at 8. Applicants respectfully disagree. Independent claim 64 is directed to an extended coverage sidewall automatic sprinkler comprising, among other features,

means for dispersing water discharged horizontally from the outlet into a spray pattern of water droplets over a generally horizontal, generally rectangularly-shaped extended coverage area of more than one hundred square feet located on one side of the sprinkler effective to control an ordinary hazard fire in the coverage area and at an average density of about 0.15 gallons per minute per square feet when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface, the collection area being approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area being located at either one of a distance of about thirty-six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers.

Applicants submit that the claimed means is not modified by sufficient structure, materials or acts for achieving the specified function of "dispersing." Rather, the recited structure modifies the coverage area in which the specified "dispersing" takes place. Accordingly, claim 64 and its "means for dispersing" satisfies the third prong of the means-plus-function analysis so as to invoke §112, sixth paragraph. Application of a prior art reference in the examination of a means-plus-function claim limitation requires that the applied prior art element perform the identical function specified in the claim. *See* MPEP 2183. If the prior art reference teaches identity of function, the Examiner then has the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. *Id.* Having incorrectly concluded that claim 64 does not invoke 35 U.S.C. 112, sixth paragraph, applicants maintain that the Examiner has not satisfied this initial

burden of proof, and therefore the Examiner has not demonstrated that the applied prior art performs the identical function in the claim or that the prior art is the same or equivalent to the structure in applicants' specification corresponding to the claimed means.

Applicants maintain that Fischer does not show or describe any specific water density in gallons per minute per square feet to be provided over a protection area. Thus, Fischer does not show or describe the claimed function, and thus, Fischer is not an applicable reference in the examination of claim 64. However as previously noted, Tramm does describe at col. 2, lines 6-17 "standards or guidelines" used by each listing organization for evaluating horizontal-type sprinklers which include, "established requirements for: minimum amount of water which must be collected, per unit time, in specified areas (i.e. density) under and between the sprinklers." To the extent this description in Tramm provides the identity of the claimed functional limitation, applicants contend that Tramm does not show or describe structure that is the same or equivalent to structure described in applicants' specification corresponding to the claimed function.

As previously identified for the Examiner, applicants' specification as originally filed discloses at least a deflector 40, 140 as structure corresponding to the claimed means. Shown in applicants' FIG. 7 as originally filed, for example, is the canopy portion 144 of the deflector 140 extending distally from the outlet of the sprinkler. In contradistinction, Tramm shows a deflector 22 as being rearward facing. i.e. the flow containing element 48 of the deflector 22 is substantially rearward the deflector mounting surface. See Tramm, col. 8, lines 13-18, FIGS. 1 and 3. Arguably, Tramm's rearward facing deflector and applicants' disclosed "forward" facing deflector are neither the same nor the equivalent. Specifically, Tramm distinguishes its rearward facing deflector from "conventional horizontal-type deflectors" by noting that the rearward facing deflector provides for a deflector with an over-all reduced length, which according to Tramm is "less obtrusive, especially when mounted inside of a recessed escutcheon." *Id.* Because Tramm fails to show or describe structure that is the same or equivalent to applicants' structure that corresponds to the claimed means, Tramm alone, at the least, fails to satisfy the requirement of the means-plus-function claim limitation.

To the extent that the Examiner believes that the hypothesized combination of Fischer in view of Tramm provides the claimed function and further teaches or suggests structure that is the same or equivalent to the structure described in applicants' specification corresponding to the

claimed means, this argument cannot stand. As discussed above, there is no motivation, suggestion or identified reason to combine these references, and the references, singularly or in combination, fail to teach or suggest the claimed invention as a whole. Accordingly, applicants respectfully submit that claim 64 is patentable, and because of their dependencies from claim 64, claims 65-74 are also patentable. Furthermore, claims 65-74 recite structural features which are: (1) a forward facing canopy, i.e. away from the outlet and towards a free end, as recited in claims 65, 66, 68, 69, 70, 74; (2) a generally flat canopy surface for deflector, as recited in claims 67, 68, 71; and (3) a deflector that has only a single flow opening, as recited in claims 67, 72, 73. Accordingly, the combination of Fischer and Tramm fails to teach or suggest applicants' invention claimed in claims 65-74 as a whole.

### 35 U.S.C. 112 REJECTIONS

Claims 1-11, 14, 15, 20-23, 25-44, 47-54, and 62 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement; and claims 1-11, 14, 15, 20-54, 62-74 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The rejections are respectfully traversed.

The rejection of claims 1-11, 14, 15, 20-23, 25-44, 47-54, and 62 under § 112, first paragraph, and the rejection of claims 1, 67, 72, and 73 under § 112, second paragraph, are believed to be overcome in view of the amendments to the claims.

With regard to the rejection of claims 20-54 and 63 as being an undue multiplicity of claims 1-11, 14, 15, and 62 under MPEP 2173.05(n), the rejection is respectfully traversed. Claims 20-54 and 63 are not repetitive of claims 1-11, 14, 15, and 62 because, for example, claim 1 recites "a single opening within the perimeter axially aligned with the center axis" whereas claims 20-54 and 63 do not recite such a feature. Claims 20-54 and 63 thus "differ substantially from ... and are not unduly multiplied" by claims 1-11, 14, 15, and 62. See 37 C.F.R. § 1.75(b) and MPEP 2173.05(n).

Applicants note that this rejection should be withdrawn because it is untimely because all of the claims at issue have been examined numerous times. The purpose of MPEP 2173.05(n) is to limit examination so that the Examiner need only review the merits of a subset of the pending claims (i.e., "the selected claims").



Applicants also note that the Examiner has not contacted the Applicants' representative to request Applicants to "select a specified number of claims for purpose of examination" as set forth in MPEP 2173.05(n). Nonetheless, consistent with MPEP 2173.05(n) and in the event the Examiner maintains this rejection, Applicants select for purpose of examination claims 1-11, 14, 15, and 62, and any claims not subject to this rejection (i.e., claims 64-74).

With regard to the rejection of claim 64 under 35 U.S.C. § 112, second paragraph, the rejection is respectfully traversed. The Office Action at pages 5-6 asserts that a recitation of "area" is a recitation of "sufficient structure ... for achieving the specified function." See MPEP 2181(I). The Office's position is incorrect because a recitation of a coverage area is not a recitation of structure, or a recitation of a structure for achieving a spray pattern. Nonetheless, to advance prosecution, claim 64 has been amended to recite sufficient structure.

It is respectfully requested that the rejections be withdrawn.

**CONCLUSION**

Allowance of at least the pending claims is respectfully requested. The Director is hereby further authorized by this paper to charge any fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-2283. **This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).**

Respectfully submitted,



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